Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A detector for determining the presence of anoligonucleotide target having a target nucleotide sequence comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe immobilized on the electrode,

with at least one of the target and the probe comprising a redox moiety, the probe having a probe nucleotide sequence which hybridizes with the target nucleotide sequence and,

in the absence of hybridization between the target and the probe, at least one redox moiety being located in a first position relative to the electrode and, in the presence of hybridization between the target and the probe, said at least one redox moiety being located in a second position relative to the electrode, said first and second positions giving rise to distinguishable redox events detectable by the electrode wherein the second position is closer to the electrode than the first position.

Claims 2-3 (Canceled).

4. (Original) The detector of claim 1 where one of the probe and the target comprises a redox moiety.

5. (Original) The detector of claim 1 wherein the probe comprises a redox moiety.

6. (Original) The detector of claim 1 wherein the target comprises a redox moiety.

7. (Original) The detector of claim 5 wherein the probe is immobilized on the electrode at a position distant from the redox moiety.

8. (Original) The detector of claim 1 wherein the electrode is capable of inducing redox events in the redox moiety.

Claims 9-11 (Canceled).

12. (Original) The detector of claim 1 wherein the second configuration comprises internal hybridization between two regions in the probe.

13. (Original) The detector of claim 1 wherein the second configuration comprises a loop comprising a region of the target and a region of the probe.

14. (Original) The detector of claim 1 wherein the electrode comprises a metal.

15. (Original) The detector of claim 14 wherein the metal is gold.

16. (Original) The detector of claim 1 wherein the redox moiety is selected from the group consisting of purely organic redox labels, viologen, anthraquinone, ethidium bromide, daunomycin, methylene blue, and their derivatives, organo-metallic redox labels, ferrocene, ruthenium, bis-pyridine, tris-pyridine, bis-imidizole, and their derivatives, and biological redox labels, cytochrome c, plastocyanin, and cytochrome c'.

Claims 17-24 (Canceled).

25. (Currently amended) A detector for determining the presence of a oligonucleotide target having a target nucleotide sequence said detector comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe comprising a first region, a second region and a third region,

the first region being immobilized upon or proximate to the electrode,

the third region being bound to a redox moiety,

the second region being present in the probe intermediate the first and third regions and comprising a first nucleotide sequence which is complementary to and spaced apart from a second nucleotide sequence with which it self hybridizes to form a first loop which positions the redox moiety a first distance from the electrode, said first nucleotide sequence also hybridizing with the target nucleotide sequence in the target, such hybridizing with the target disrupting the first loop and permitting complementary nucleotide sequences in the second region to self hybridize to form a second loop which positions the redox moiety a second distance from the electrode, said first and second distances giving rise to distinguishable redox events detectable by the electrode wherein the second distance is shorter than the first distance.

Claims 26-27 (Canceled).

28. (Original) The detector of claim 25 additionally comprising a detector for detecting electron transduction between the electrode and the redox moiety when the second loop is formed.

29. (Original) The detector of claim 28 additionally comprising an indicator for inducing electron transduction between the electrode and the redox moiety when the second loop is formed.

30. (Original) The detector of claim 29 wherein the first region is at one end of the probe.

31. (Original) The detector of claim 29 wherein the third region is at the second end of the probe.

32. (Currently amended) The detector of claim 25 [[27]] wherein the electrode comprises a metal.

33. (Currently amended) The detector of claim 32 [[33]] wherein the metal is gold.

34. (Original) The detector of claim 33 wherein the redox moiety is selected from the group consisting of purely organic redox labels, such as viologen, anthraquinone, ethidium bromide,

daunomycin, methylene blue, and their derivatives, organo-metallic redox labels, such as ferrocene, ruthenium, bis-pyridine, tris-pyridine, bis-imidizole, and their derivatives, and biological redox labels, such as cytochrome c, plastocyanin, and cytochrome.

35. (Original) A detector for determining the presence of an oligonucleotide target having a target nucleotide sequence comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe immobilized on the electrode,

the target comprising a redox moiety, the probe having a probe nucleotide sequence which hybridizes with the target nucleotide sequence and,

in the absence of hybridization between the target and the probe, the redox moiety being located in a first position relative to the electrode and, in the presence of hybridization between the target and probe the redox moiety being located in a second position relative to the electrode, said first and second positions giving rise to distinguishable redox events detectable by the electrode.

36. (Original) The detector of claim 35 wherein the first position is closer to the electrode than the second position.

37. (Original) The detector of claim 35 wherein the second position is closer to the electrode than the first position.

38. (Original) The detector of claims 35 wherein the electrode is capable of inducing redox events in the redox moiety.

39. (Currently amended) A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

obtaining a detector for determining the presence of an oligonucleotide target having a target nucleotide sequence comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe immobilized on the electrode,

with at least one of the target and the probe comprising a redox moiety, the probe having a probe nucleotide sequence which hybridizes with the target nucleotide sequence and,

in the absence of hybridization between the target and the probe, at least one redox moiety being located in a first position relative to the electrode and, in the presence of hybridization between the target and the probe, said at least one redox moiety being located in a second position relative to the electrode, said first and second positions giving rise to distinguishable redox events detectable by the electrode,

contacting the sample under oligonucleotide hybridization conditions with the detector ~~of claim 1~~ and sensing redox events in the redox moiety with the electrode in the presence of the sample and in the absence of the sample and,

correlating similarity in redox events between the two sensings with the absence of the target and a change in redox events with the presence of the target, wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

40. (Currently amended) A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

obtaining a detector for determining the presence of an oligonucleotide target having a target nucleotide sequence comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe immobilized on the electrode,

with at least one of the target and the probe comprising a redox moiety, the probe having a probe nucleotide sequence which hybridizes with the target nucleotide sequence and,

in the absence of hybridization between the target and the probe, at least one redox moiety being located in a first position relative to the electrode and, in the presence of hybridization between the target and the probe, said at least one redox moiety being located in a second position relative to the electrode, said first and second positions giving rise to distinguishable redox events detectable by the electrode,

contacting the sample under oligonucleotide hybridization conditions with the detector ~~of claim 1~~ and sensing redox events in the redox moiety with the electrode and,

correlating the sensed redox event with at least one sensed redox even sensed in the presence of and/or the absence of the target wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

Claim 41-46 (Canceled).

47. (Currently amended) A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

obtaining a detector for determining the presence of a oligonucleotide target having a target nucleotide sequence said detector comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe comprising a first region, a second region and a third region,

the first region being immobilized upon or proximate to the electrode,

the third region being bound to a redox moiety,

the second region being present in the probe intermediate the first and third regions and comprising a first nucleotide sequence which is complementary to and spaced apart from a second nucleotide sequence with which it self hybridizes to form a first loop which positions the redox moiety a first distance from the electrode, said first nucleotide sequence also hybridizing with the target nucleotide sequence in the target, such hybridizing with the target disrupting the first loop and permitting complementary nucleotide sequences in the second region to self hybridize to form a second loop which positions the redox moiety a second distance from the electrode, said first and second distances giving rise to distinguishable redox events detectable by the electrode,

contacting the sample under oligonucleotide hybridization conditions with the detector ~~of claim 25~~ and sensing redox events in the redox moiety with the electrode in the presence of the sample and in the absence of the sample and,

correlating similarity in redox events between the two sensings with the absence of the target and a change in redox events with the presence of the target wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

48. A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

obtaining a detector for determining the presence of a oligonucleotide target having a target nucleotide sequence said detector comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe comprising a first region, a second region and a third region,

the first region being immobilized upon or proximate to the electrode,

the third region being bound to a redox moiety,

the second region being present in the probe intermediate the first and third regions and comprising a first nucleotide sequence which is complementary to and spaced apart from a second nucleotide sequence with which it self hybridizes to form a first loop which positions the redox moiety a first distance from the electrode, said first nucleotide sequence also hybridizing with the target nucleotide sequence in the target, such hybridizing with the target disrupting the first loop and permitting complementary nucleotide sequences in the second region to self hybridize to form a second loop which positions the redox moiety a second distance from the electrode, said first and second distances giving rise to distinguishable redox events detectable by the electrode,

contacting the sample under oligonucleotide hybridization conditions with the detector ~~of claim 25~~ and sensing redox events in the redox moiety with the electrode and,

correlating the sensed redox event with at least one sensed redox event sensed in the presence of and/or the absence of the target wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

Claim 49-50 (Canceled).

51. (Original) A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

contacting the sample under oligonucleotide hybridization conditions with the detector of claim 35 and sensing redox events in the redox moiety with the electrode in the presence of the sample and in the absence of the sample and,

correlating similarity in redox events between the two sensings with the absence of the target and a change in redox events with the presence of the target.

52. (Currently amended) A method for detecting the presence of an oligonucleotide target having a target nucleotide sequence in a sample comprising:

contacting the sample under oligonucleotide hybridization conditions with the detector of claim 35 and sensing redox events in the redox moiety with the electrode and,

correlating the sensed redox event with at least one sensed redox event sensed in the presence of and/or the absence of the target.

53. (Original) The method of claim 51 wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

54. (Original) The method of claim 52 wherein the target is associated with an object and wherein the sensing of the presence of the target is correlated with the authenticity of the object.

55. (Currently amended) A method for authenticating an object comprising:

obtaining a detector for determining the presence of an oligonucleotide target having a target nucleotide sequence comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe immobilized on the electrode,

with at least one of the target and the probe comprising a redox moiety, the probe having a probe nucleotide sequence which hybridizes with the target nucleotide sequence and,

in the absence of hybridization between the target and the probe, at least one redox moiety being located in a first position relative to the electrode and, in the presence of hybridization between the target and the probe, said at least one redox moiety being located in a second position relative to the electrode, said first and second positions giving rise to distinguishable redox events detectable by the electrode, ~~of claim 1~~,

associating the object with the target,

sensing the presence of the target associated with the object; and

correlating the sensing of the presence of that target oligonucleotide with the authenticity of the object.

56. (Original) The method of claim 55 wherein the sensing is carried out in the presence of masking oligonucleotides.

Claim 57-58. (Canceled).

59. (Currently amended) A method for authenticating an object comprising:

obtaining a detector for determining the presence of a oligonucleotide target having a target nucleotide sequence said detector comprising;

an electrode capable of sensing redox events in a redox moiety and

an oligonucleotide probe comprising a first region, a second region and a third region,

the first region being immobilized upon or proximate to the electrode,

the third region being bound to a redox moiety,

the second region being present in the probe intermediate the first and third regions and comprising a first nucleotide sequence which is complementary to and spaced apart from a second nucleotide sequence with which it self hybridizes to form a first loop which positions the redox moiety a first distance from the electrode, said first nucleotide sequence also hybridizing with the target nucleotide sequence in the target, such hybridizing with the target disrupting the first loop and permitting complementary nucleotide sequences in the second region to self hybridize to form a second loop which positions the redox moiety a second distance from the electrode, said first and second distances giving rise to distinguishable redox events detectable by the electrode ~~of claim 25~~,

associating the object with the target,

sensing the presence of the target associated with the object; and

correlating the sensing of the presence of that target oligonucleotide with the authenticity of the object.

60. (Original) The method of claim 59 wherein the sensing is carried out in the presence of masking oligonucleotides.

61. (Original) A method for authenticating an object comprising:

obtaining a detector of claim 35,

associating the object with the target,

sensing the presence of the target associated with the object; and

correlating the sensing of the presence of that target oligonucleotide with the authenticity of the object.

62. (Original) The method of claim 61 wherein the sensing is carried out in the presence of masking oligonucleotides.